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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue, Suite 900
Seattle, WA 98101-3140

JUN 27 2012

OFFICE OF
COMPLIANCE AND ENFORCEMENT

Reply to: OCE-127

Certified Mail Number 7011 2970 0000 0876 4538
Return Receipt Requested

James Cagle, Risk Manager - EHS
Nu-West Industries, Inc.
Agrium Conda Phosphate Operations
3010 Conda Road
Soda Springs, Idaho 83276

Re: Approval of Addendum to the Work Plan for Additional Requirements, dated June 22, 2012; Administrative Order on Consent for Nu-West Industries, Inc.; Idaho Facility, Docket No. RCRA-10-2009-0186

Dear Mr. Cagle:

The purpose of this letter is to approve the Addendum to the Work Plan for Additional Requirements, submitted to EPA on June 22, 2012 pursuant to the Administrative Order on Consent, Docket No. RCRA-10-2009-0186, as modified per the enclosed mark up. I have included only those pages from the submitted document where EPA has specified changes.

Should you have any questions, I may reached at (206) 553-2964. Alternatively, you may reach me via email at: Magolske.Peter@epamail.epa.gov.

Thank you for your attention to this important matter.

Sincerely,

Peter Magolske
Air / RCRA Compliance Unit

FILE COPY

Enclosure

cc: Brian Monson, Idaho Department of Environmental Quality
P. Scott Burton, Esq. Hunton and Williams LLP

Borehole Drilling Procedures

The following revised borehole drilling, geophysical logging, and monitoring well procedures are applicable to the A-27 through A-32 locations in the vicinity of the seismic survey transects. For any conflict in procedures found elsewhere in the Work Plan for Additional Requirements, the procedures in this section shall apply.

Two drilling methods are included in the revised approach, (i) air rotary using a down-the-hole-Hammer (DTHH) with simultaneous casing advancement (hereafter referred to as advanced casing air rotary) and (ii) air rotary without simultaneous casing advancement (hereafter referred to as direct air rotary).

Soil-Bedrock Interface Evaluation

Up to two boreholes will be advanced in each of the six locations (A-27 through A-32) using nominal 8-inch diameter advanced casing or direct air rotary drilling methods to assess water at the soil/basalt bedrock interface. The boreholes will be located approximately 20 feet apart and may be advanced contemporaneously at both locations or may be advanced sequentially, completing the evaluation and well or casing installation at the first location before moving to the second location. The sequence will be developed in consultation with the drilling contractor and based on the relative time constraints of the evaluation and well or casing installation versus breaking down the drilling rig and setting up at the offset borehole location. The boreholes will be advanced to seven (7) feet below the top of basalt bedrock, which is assumed to be between approximately 10 to 30 feet below ground surface (bgs); however, the actual depth to top of bedrock will be identified during drilling at each location. If advanced casing or driven casing air rotary drilling method is used to maintain an open borehole through the soil overburden, the casing will be removed from the borehole or retracted to at least three (3) feet above the soil-bedrock interface to prevent restricting groundwater flow into the borehole before monitoring for the appearance of groundwater.

Upon reaching the target depth, the drill string will be removed from the borehole and the total depth will be measured . If loose soil or rock has collapsed into the bottom of the borehole and prevents measurement of the water level, the borehole will be cleaned out using the drill bit. The process to clean out the borehole will be repeated as necessary, and any efforts to clean out the borehole and observations regarding the occurrence of groundwater will be documented, recording the timing of each cleaning cycle and the volume of water produced each cycle. Upon removal of the drill string from a clean borehole, a temporary 4-inch diameter Schedule 40 polyvinyl chloride (PVC) casing with a 10-foot long 0.020-inch slotted screen will be installed to monitor for the appearance of groundwater for at least 45 minutes, recording the depth observed at 15 minute intervals while monitoring for the appearance of water.

If a water column of at least 0.75 feet (9 inches) is present in the temporary PVC casing after 45 minutes, a grab sample will be collected using either an inertial pump, peristaltic pump, or bottom-filling polyethylene bailer in accordance with WSP revised standard operating procedure 3 (Enclosure A). The sample will be analysed for field parameters including pH, conductivity, temperature, and turbidity using a multi-parameter water quality meter (e.g., Horiba U-52). Additional analyses will be conducted using Hach portable colorimeter (DR/890) and field test kits for nitrate (Hach method 8039), sulfate (Hach method 8051), and orthophosphate (Hach method 8114 or 8048). The Hach procedure descriptions for each method are included as Enclosure B. The multi-parameter water quality meter will be calibrated daily for pH, interface monitoring well, the borehole will be sealed in accordance with the Idaho Administrative Rules for well construction.

Bedrock Borehole Drilling and Vertical Groundwater Profiling

At each of the six locations, two boreholes will be installed to evaluate bedrock groundwater; one borehole with a monitoring well screened at the initial bedrock water-bearing zone and one borehole with a monitoring well screened in a deeper water-bearing zone which is at least 20 feet below the bottom of the screened interval for the shallow well. The bedrock boreholes will be initially constructed with a conductor casing installed to 10 feet below the top of bedrock to case off perched groundwater. The boreholes will be advanced using nominal 16-inch diameter direct air rotary drilling methods for installation of the nominal 10-inch diameter steel conductor casing, which will be grouted into place.

Within the deep bedrock boreholes, vertical groundwater profiling and borehole geophysical logging will be conducted, followed by monitoring well installation in a deeper water-bearing zone. The other bedrock borehole will be advanced for monitoring well installation in a shallow water-bearing zone.

The deep borehole drilling will utilize nominal 8-inch diameter advanced casing air rotary drilling methods. Observations during drilling will include lithology of cuttings, advancement rate, depth of first strike of groundwater, and rate of groundwater production during drilling. The borehole will be advanced to the first strike of groundwater and stopped within 10 feet of first strike. At this depth, the borehole will be developed using compressed air from the drilling rig (i.e., blow out the borehole) for approximately 20 minutes, while observing the groundwater yield. The exact methodology for borehole development will be determined in consultation with the driller and may include retracting the advanced casing a few feet to improve communication with the water-bearing zones. After development, the drill bit will be removed while leaving the advanced casing in the borehole. The water level in the casing will be observed for approximately 20 minutes, or until stabilized, and a grab sample will be collected using either an inertial pump, peristaltic pump, or bottom-filling polyethylene bailer in accordance with WSP revised SOP 3 (Enclosure A). The sample will be analyzed for field parameters including pH, conductivity, temperature, and turbidity using a multi-parameter water quality meter (e.g., Horiba U-52). Additional analyses will be conducted using Hach portable colorimeter (DR/890) and field test kits for nitrate (Hach method 8039), sulfate (Hach method 8051), and orthophosphate (Hach method 8114 or 8048). The Hach procedures ~~descriptions~~ for each method to be followed are included as Enclosure B. The multi-parameter water quality meter will be calibrated daily for pH, conductivity, and turbidity in accordance with the manufacturer's recommendations. An accuracy check will be performed daily for the Hach test kits using the Standard Solution Method as described in the procedure descriptions (Enclosure B). The calibration and accuracy check records will be documented. Spent field test kit reagent and tested groundwater samples will be managed as investigation-derived waste.

Advancement of the deep borehole will continue using nominal 8-inch diameter advanced casing air rotary drilling methods to a total depth of approximately 60 feet below the first strike of groundwater, stopping in 10 foot increments for development and grab sampling using the procedure described above. In the event that no additional water-bearing zones are identified within 60 feet of the first strike of groundwater, the borehole will be advanced until a second water-bearing zone is identified.

As summarized in Tables 1 and 2, analytical methods will be those specified below. Samples exhibiting gross alpha above 15 picocuries per liter (pCi/L) will be analyzed for radium 226 and radium 228.

- total dissolved solids (TDS) by Standard Method 2540C
- total suspended solids (TSS) by Standard Method 2540D
- antimony, arsenic, barium, beryllium, cadmium, calcium, chromium, lead, magnesium, nickel, potassium, selenium, sodium, thallium, and vanadium by EPA Method 200.8 or 60108
- chloride, fluoride, nitrate as N, nitrite as N, and sulfate by EPA Method 300.0 or 300.1
- sulfide by Standard Method 4500 S=F
- pH by Standard Method 4500 H+B
- total ammonia by EPA Method 350.1
- total phosphorous by EPA Method 365.3
- orthophosphate by EPA Method 365.1
- total nitrogen by Standard Method 4500N
- total Kjeldahl nitrogen (TKN) by EPA Method 351.2
- hardness as $CaCO_3$ by Standard Method 2340B
- total alkalinity as $CaCO_3$ by Standard Method 2320B
- bicarbonate and carbonate alkalinity as $CaCO_3$ by Standard Method 4500CO2D
- specific conductance by EPA Method 120.1
- gross alpha and gross beta by EPA Method 900.0
- radium 226 by EPA Method 903.0
- radium 228 by EPA Method 904.0

With the exception of total Kjeldahl nitrogen, total phosphorous, sulfide, and total suspended solids, all of the above stated analytical methods meet EPA's requirements for drinking water analysis. The laboratory method detection limits are compared to State of Idaho drinking water standards in Table 2. Total Kjeldahl nitrogen, total phosphorus, sulfide, and total suspended solids do not have drinking water standards - these analytes will be analyzed using accepted EPA or Standard Method analytical methods.

The chemical analytical results for the groundwater samples will be compared to the Idaho Primary and Secondary Constituent Standards for groundwater (IDAPA 58.01.11) and EPA National Primary Drinking Water Regulations Maximum Contaminant Levels ~~Standards~~ (40 C.F.R. Part~~s 9,~~ 141~~, and 142~~).

Field QAIQC Samples

Groundwater sampling will include the collection of blind field duplicates at a ratio of 1:10 and, if necessary, equipment blanks on a daily basis. These field quality assurance/quality control samples will be collected in accordance with WSP SOP #21.

Equipment Decontamination

Decontamination of non-dedicated groundwater sampling equipment will be performed between each monitoring well , and decontaminated sampling equipment will be used for the collection of each sample. Decontamination procedures are specified in WSP SOPs #15 and #19. Decontamination will include the use of a phosphate-free detergent, such as Liquinox®.

Table 2
Groundwater Sample Analytical Methods
Nu-West Industries, Inc.
Conda Phosphate Operations Facility
Soda Springs, Idaho

Analytes	Test Method (b)	Method Detection Limit (mg/l)	Laboratory Reporting Limit (mg/l)	EPA Maximum Contaminant Level (c) (mg/l)	Idaho Groundwater Standard (d) (mg/l)	Sample Criteria (e)			
						Container	Quantity (ml)	Preservative	Holding Time
Dissolved Metals (mg/l)									
Antimony	SW-846 6010B	0.0045	0.006	0.006	0.006	P	500	4°C; HNO3 <2 S.U.	6 months
Arsenic	SW-846 6010B	0.0054	0.01	0.01	0.01	P	500	4°C; HNO3 <2 S.U.	6 months
Barium	SW-846 6010B	0.005	0.2	2	2	P	500	4°C; HNO3 <2 S.U.	6 months
Beryllium	SW-846 6010B	0.001	0.004	0.004	0.004	P	500	4°C; HNO3 <2 S.U.	6 months
Cadmium	SW-846 6010B	0.001	0.005	0.005	0.005	P	500	4°C; HNO3 <2 S.U.	6 months
Calcium	SW-846 6010B	0.1	1	NS	NS	P	500	4°C; HNO3 <2 S.U.	6 months
Chromium	SW-846 6010B	0.002	0.01	0,1	0.1	P	500	4°C; HNO3 <2 S.U.	6 months
Lead	SW-846 6010B	0.002	0.005	0.015	0.015	P	500	4°C; HNO3 <2 S.U.	6 months
Magnesium	SW-846 6010B	0.1	5	NS	NS	P	500	4°C; HNO3 <2 S.U.	6 months
Nickel	SW-846 6010B	0.0023	0.04	NS	0.209	P	500	4°C; HNO3 <2 S.U.	6 months
Potassium	SW-846 6010B	0.1	10	NS	NS	P	500	4°C; HNO3 <2 S.U.	6 months
Selenium	SW-846 6010B	0.0034	0.01	0.05	0.05	P	500	4°C; HNO3 <2 S.U.	6 months
Sodium	SW-846 6010B	1	20	NS	NS	P	500	4°C; HNO3 <2 S.U.	6 months
Thallium	EPA 200.8	0.00016	0.00125	0.002	0.002	P	500	4°C; HNO3 <2 S.U.	6 months
Vanadium	SW-846 6010B	0.0009	0.05	NS	NS	P	500	4°C; HNO3 <2 S.U.	6 months
General Chemistry (mg/l)									
Chloride	EPA 300	1	2	NS	250	P	250	4°C	28 days
Fluoride	EPA 300	0.1	0.2	4~~NS~~	4	P	500	4°C	28 days
Nitrate as N	EPA 300	0.05	0.1	10	10	P, G	1,000	4°C; H2SO4 <2 S.U.	28 days
Nitrite as N	EPA 300	0.05	0.1	1	1	P	1,000	4°C	48 hours
Total Nitrogen	SM18 4500N	0.21	0.46	NS	NS	P	500	4°C; H2SO4 <2 S.U.	28 days
Total Kjeldahl Nitrogen	EPA 351.2	0.05	0.1	NS	NS	P	1,000	4°C; H2SO4 <2 S.U.	28 days
Orthophosphate	EPA 365.1	0.009	0.1	NS	NS	P (f)	500	4°C	48 hours
Total Phosphorous	EPA 365.3	0.009	0.1	NS	NS	P	100	4°C; H2SO4 <2 S.U.	28 days
Sulfate	EPA 300	1	2	NS	NS	P	500	4°C	28 days
Sulfide	SM4500S=F	0.6	1	NS	NS	P, G	500	4°C; NaOH+Zn acetate>9 S.U.	7 days
TDS	SM2540C	10	100	NS	500	P	100	4°C	7 days
TSS	SM2540D	4	10	NS	NS	P	100	4°C	7 days
pH (S.U.)	SM4500 H+B	0.01	0.01	NS	6.5 to 8.5	P	100	4°C	immediate
Hardness (CaCO3)	SM2340B	4	4	NS	NS	P	500	4°C; HNO3 <2 S.U.	6 months
Alkalinity (total)	SM19 2320B	2.5	5	NS	NS	P	1000	4°C	14 days
Ammonia (total)	EPA 350.1	0.05	0.1	NS	NS	P	500	4°C; H2SO4 <2 S.U.	28 days
Alkalinity (bicarbonate and carbonate)	SM18 4500CO2D	5	5	NS	NS	P	1000	4°C	14 days
Specific Conductance	EPA 120.1	NA	1	NS	NS	P	1000	4°C	28 days